

CLAIMS

1. Method for measuring the polarisation mode dispersion of an optical fibre applying an optical signal to a first end of the fibre (11) and coupling a second end of the fibre (111) to an interferometer (25), said method comprising the step of:
- generating by means of said interferometer (25) at least one interferogram comprising at least a central peak and two side lobes having a determined information content;
- and being characterised by the steps of
- processing said interferogram in such a way as to measure the information content of at least one of said two side lobes;
 - and
 - determining the polarisation mode dispersion of the fibre associating to said measurement of said information content a probability density function representative of the polarisation mode dispersion (PMD) of the fibre in the form of differential group delay.
2. Method as claimed in claim 1 characterised in that said step of determining the polarisation mode dispersion comprises the step of
- computing the deconvolution of said at least one side lobe with said central peak so that said deconvolution corresponds to the probability density of the differential group delay determined by the PMD of the fibre.
3. Method as claimed in claim 1 or 2 characterised by the additional step of
- determining an average of measurements of said information content whereto said probability density is to be associated.
4. Method as claimed in any of the previous claims, characterised in that said information content comprises a

single numeric value determined by the position of said at least one side lobe in the interferogram.

5. Method as claimed in claims 1 through 3 characterised in that said information content comprises a plurality of
5 values determined by the position of said at least one side lobe in the interferogram.

6. Computer product able to be directly loaded in the internal memory of an electronic measuring device and comprising portions of software code to implement the
10 method as claimed in any of the claims from 1 to 5 when the product is run on said electronic device.

7. System for measuring the polarisation mode dispersion of an optical fibre, comprising
- an optical source (21) able to generate an optical signal
15 to be injected into the fibre (11);
- an interferometer (25) associated to the fibre and able to generate an interferogram comprising at least a central peak and two side lobes having a determined information content;
20 characterised by
- a device (27) connected to said interferometer and able to
- process said interferogram in such a way as to measure the information content of at least one of said
25 side lobes; and
- determining the polarisation mode dispersion of the fibre associating to said measurement of said information content a probability density function representative of the polarisation mode dispersion
30 (PMD) of the fibre in the form of differential group delay.

8. System as claimed in claim 7, characterised in that said device (27) comprises

- a first module able to compute the deconvolution of said at least one side lobe with said central peak so that said deconvolution corresponds to the probability density of the differential group delay determined by the PMD of the fibre.

9. System as claimed in claim 7 or 8, characterised in that said device comprises

- a second module able to determine an average of measurements of said information content whereto said probability density is to be associated.

10. Device for measuring the polarisation mode dispersion of an optical fibre into which optical signals have been injected, comprising

- an opto-electronic module (37) able to convert the optical signals into electrical signals;

- a display device (35) able to generate an interferogram comprising at least a central peak and two side lobes having a determined information content; characterised by

- a control unit (30) able to

- measure the information content of at least one of said two side lobes; and

- determining the polarisation mode dispersion of the fibre associating to said measurement of said information content a probability density function representative of the polarisation mode dispersion (PMD) of the fibre in the form of differential group delay.

11. Device as claimed in claim 10, characterised in that it comprises

- a first program module able to compute the deconvolution of said at least a side lobe with said central peak so that said deconvolution corresponds to the probability density

of the differential group delay determined by the PMD of the fibre.

12. Device as claimed in claim 10 or 11, characterised in that it comprises

- 5 - a second program module able to determine an average of measurements of said information content whereto said probability density is to be associated.